D. Johnson
#4 11-7-99
Priority Papers

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Patentanmeldung Nr. | Patent application No. | Demande de brevet n°

98202797.1

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Blatt 2 der Bescheinigung
Sheet 2 of the certificate
Page 2 de l'attestation

Anmeldung Nr.:
Application no.: 98202797.1
Demande n°:

Anmeldetag:
Date of filing: 21/08/98
Date de dépôt:

Anmelder:
Applicant(s):
Demandeur(s):
Koninklijke Philips Electronics N.V.
5621 BA Eindhoven
NETHERLANDS

Bezeichnung der Erfindung:
Title of the invention:
Titre de l'invention:
Information processing device

In Anspruch genommene Priorität(en) / Priority(ies) claimed / Priorité(s) revendiquée(s)

Staat: State: Pays:	Tag: Date: Date:	Aktenzeichen: File no. Numéro de dépôt:

Internationale Patentklassifikation:
International Patent classification:
Classification internationale des brevets:
/

Am Anmeldetag benannte Vertragstaaten:
Contracting states designated at date of filing: AT/BE/CH/CY/DE/DK/ES/FI/FR/GB/GR/IE/IT/LI/LU/MC/NL/PT/SE
Etats contractants désignés lors du depôt:

Bemerkungen:
Remarks:
Remarques:

Information processing device.

FIELD OF THE INVENTION

The invention relates to an information processing device as defined in the preamble of Claim 1. The invention further relates to a method for processing information as defined in the preamble of Claim 6.

BACKGROUND OF THE INVENTION

A device as defined above is widely known. For example, a CD-player or MP3-player processes digital audio files so as to make them audible through a headphone or loudspeaker. The audio files constitute primary information of the player, since it is the player's primary function to process and play the audio files. An MP3-player comprises a digital memory for storing the audio files, while a CD-player has removable storage means, i.e. respective CDs. As another example, an organizer or personal digital assistant (PDA) enables entry, storage and retrieval of digital data, such as addresses and appointments. These digital data constitute primary data of the organizer or PDA since it is related to the primary function of these devices.

A disadvantage of the known devices is that they carry no emotional value to their owners, hence they can easily be replaced by a similar device, since the primary information which is processed by one device can be easily copied to a similar device. An owner of such a device will have no feelings of attachments to the device, which makes the device less valuable to the owner.

OBJECT AND SUMMARY OF THE INVENTION

It is an object of the invention to provide a device that carry emotional value to its owner and triggers feelings of attachment. To this end, a first aspect of the invention provides a device as claimed in Claim 1. A second aspect of the invention provides a method as claimed in Claim 6. Advantageous embodiments of the invention are defined in the dependent claims.

The information processing device as defined in Claim 1 comprises personalizing means, e.g. a software agent, which monitors the use of the device, i.e. the units

of primary information which are being processed and which processing functions of the device are being invoked. From these observations, the personalizing means derive personalizing information which is stored in a non-volatile memory. The personalizing information may comprise the time of manufacturing of the device and the time of acquisition by the owner, the total time of ownership, information about a person from whom a unit of primary information has been acquired, a time or city of the acquisition, a frequency of playing an audio-track, etc. After using the device for some time, the device has built up a history of personalizing information, which is valuable to its owner because it can trigger memories of events the device and the user were involved in during the ownership relation. In an embodiment of the invention as claimed in Claim 2, a link is maintained between units of primary information and units of personalizing information which were derived from the use of said primary information. Whenever the primary information is being processed, the user has access to the related personalizing information, triggering memories of events which the primary information was involved in.

In an embodiment of the invention as claimed in Claim 3, the related personalizing information is displayed on a graphical display when the primary information is being processed, e.g. when playing a particular audio track.

In an embodiment of the invention as claimed in Claim 4, personalizing information remains stored in the further storage means, even if the primary information it was derived from is erased from the storage means. The link between the two types of information is broken, but a trace of the erased primary information is preserved by its related personalizing information. E.g. long after an audio track has been removed from an MP3-player its title and the number of times it has been played could be available.

In an embodiment of the invention as claimed in Claim 5, primary information can be exchanged with similar devices, e.g. by connecting two MP3-players, audio files can be transferred between them. Attached to a file thus transferred is a personal tag belonging to the owner of the sending device. The tag is detached from the transferred audio file by the receiving device and stored as personalizing information by its personalizing means. The personal tag may comprise a personal message from the owner of the sending device, or an artistic icon. This personal tag is preserved in the MP3-player, long after the song was deleted from the player's memory.

It is an achievement of the invention that the user develops a feeling of attachment to the device according to the invention, making the device irreplaceable by another device, even if the other device contains the same primary information. By using the

device for some time, the owner adds a personal element to it, which makes the device unique among similar devices.

The invention is particularly suitable for a digital audio players, such as MP3-players, or PDAs. The invention is further applicable, for example, GSM telephones, remote controls, television receivers, video recorders etc.

BRIEF DESCRIPTION OF THE DRAWINGS

These and other aspects of the invention will be apparent from and elucidated by way of a non-limitative example with reference to a drawing in which:

Figure 1 shows an MP3-player as an embodiment of the device according to the invention;

Figure 2 shows a further MP3-player as an alternative embodiment of the device according to the invention.

DESCRIPTION OF EMBODIMENTS

The figure shows an MP3-player 1 comprising user control unit 2, primary storage 3, a graphical display 4, an interface 5, a microprocessor 6, an audio processor 7, a clock 8, a personalizer 9 and a secondary storage 10. The MP3-player 1 is operated by a user by means of the control unit 2, which sends commands to the microprocessor 6. The microprocessor 6 receives commands from the control unit 2, it sends and receives digital audio information through the interface 5, it controls the clock 8 and receives time signals from it. The microprocessor 6 further stores and retrieves digital audio information in the primary storage 3, sends graphical information to the display 4 and digital audio information to the audio processor 7. The audio processor 7 converts the digital audio signals to analog audio signals which can be further processed by a headphone or an amplifier (not shown). The personalizer 9 stores and retrieves digital data in the secondary storage 10, and communicates said digital data with the microprocessor 6.

The MP3-player 1 receives digital MPEG-3 audio files and descriptive information through the interface 5 and stores them in the primary storage 3. In response to a user command, any audio file in the primary storage 3 can be played through the audio processor 7 and listened to by means of e.g. a headphone. The descriptive information, e.g. comprising the title of the audio file, the composer and the performer, is displayed on the display 4 when the corresponding audio file is being played.

The audio files may be obtained from a CD-player, from internet or from a similar MP3-player. Audio files can also be sent to similar MP3-players through the interface 5. The owner of the MP3-player 1 can store a personal tag, e.g. a personal message, an e-mail address or an artistic icon in the secondary storage 10. Said tag could be prepared on a personal computer and obtained through the interface 5. When an audio file is sent to a similar MP3-player, the personal tag is sent along with the audio file. When an audio file and a personal tag is received from a similar MP3-player the personalizer 9 detaches the tag from the audio file. The audio file is stored into the primary storage 3, while the received personal tag is stored into the secondary storage 10, along with a time-stamp generated by the clock 8 and a reference to the audio file, which reference establishes a link between de audio file and the generated personalizing information. Whenever the audio file is played, the secondary storage 10 is searched for personalizing information comprising a reference to the audio file. If such information is found, it is displayed on the display 4 so as to remind the owner of the person from who the audio file was acquired, and e.g. the time and place of the acquisition. If said audio file is erased from the primary storage 3 in response to a user command, the related personal tag and time/place information are preserved in the secondary storage 10, together with the title of the audio file and statistical data, comprising e.g. the number of times the file was played. From each audio file which has ever been stored in the MP3-player 1, a trace is left in the secondary storage 10, triggering memories about the history of use of the MP3-player 1. The information in the secondary storage 10 thus personalizes the MP3-player 1, making its owner feel more attached to it. Beside information related to audio files, the secondary storage 10 also contains information about e.g. the time and place of purchasing the device, the total duration of the ownership, the number of hours it is used, etc. The personalizing information in the secondary storage 10 can be browsed by means of the control unit 2 and the display 4, but it cannot be altered, erased or copied through the interface 5. It becomes a part of the MP3-player 1, making it a unique device.

Figure 2 shows a further MP3-player as an embodiment of the device according to the invention. Reference numbers which occur in both figures denote the same components. The MP3-player of Figure 2 comprises additionally a matcher 11 and an alerter 12. The interface 5 is further adapted to communicate with similar devices within a restricted area, for example, having a radius of circa 10 meters, e.g. by means of electro-magnetic waves or infrared signals. The personalizer 9 is further adapted to transmit parts of the personalizing information to similar devices within said area. For example it could transmit identities of persons from who audio files have been obtained recently. The personalizer 9 is further

adapted to relay personalizing information which was received from similar devices within said area to the matcher 11. The matcher 11 compares the received personalizing information with the personalizing information in the secondary storage 10, and if they match to a certain degree, the alerter 12 is controlled to give a signal to the owner. For example, if the personalizing information of the MP3-player 1 contains a reference to a particular person, and the identity of that person is received from a similar MP3-player within said area, the owners of the two players are likely to have a common acquaintance, which could be the start of a conversation. The identity of said common acquaintance could be presented on the display 4. Also, two MP3-players within a certain area exchange information about audio files which have been stored in the primary storage of both players in the past. If there is a substantial overlap, the owners will again be notified. Instead of a list of specific audio files, the personalizer 9 could be adapted to generate a user profile describing the owner's taste in more general terms, e.g. using categories which are rated according to the owner's taste. In this way, the personalized device according to the invention could play a role in bringing together people having similar tastes or common acquaintances.

Although the invention has been described with reference to particular illustrative embodiments, variations and modifications are possible within the scope of the inventive concept. Thus, for example, the primary storage 3 and the secondary storage 10 could be distinguishable parts of one large storage, e.g. a flash memory. The personalizer 9 could be a separate circuit or be implemented as a software function of the microprocessor 6. It is not a necessary requirement that the personalizing information cannot be altered, erased or copied. It could be desirable to be able to make a backup, since the MP3-player could be lost or damaged. The MP3-player 1 could be equipped with a GPS-circuit, enabling the generation of personalizing information concerning the place where a particular event, e.g. transfer of an audio file, has happened.

The invention can be applied to a PDA, the primary information being addresses, appointments, notes etc. Such data could similarly be exchangeable with similar devices, and personalizing information could be generated in a way as described above. The invention could also be applied to a GSM telephone, the primary information being telephone numbers and e-mails. Any time a particular number is dialed, personalizing information concerning the place and time and interlocutor is generated. Along with a phone conversation, a digital personal tag could be transferred and stored in the secondary storage of the interlocutor's phone.

CLAIMS:

1. An information processing device comprising storage means for storing units of primary information, and user operable means for making selections out of the units of primary information to be processed and/or out of functions to be invoked, **characterized in that** the device further comprises further storage means, and personalizing means for deriving personalizing information from said selections to store the personalizing information in the further storage means.

2. A device according to claim 1, **characterized in that** the personalizing means are adapted to maintain a link between a respective unit of said primary information and a respective unit of the personalizing information.

3. A device according to claim 2, **characterized in that** the device comprises presentation means for presenting information, the personalizing means being adapted to present a respective unit of personalizing information which is linked to a respective unit of primary information when the respective unit of primary information is being processed.

4. A device according to claim 2 or 3, the device being adapted to erase a respective unit of primary information in response to a user command, **characterized in that** the personalizing means are adapted to remove a link between the respective unit of primary information and a respective unit of personalizing information, and preserve the storage of the respective unit of personalizing information in the further storage means.

5. A device according to any of the claims 1 to 4, the device comprising communication means for exchanging units of primary information with a similar device, **characterized in that** the personalizing means are adapted to attach a personal tag to a unit of primary information to be sent to the similar device, the personalizing means being further adapted to detach a personal tag from a received unit of primary information and store it as personalizing information into the further storage means.

6. A method for processing information by means of a device, comprising storing the primary information, and making selections of units of primary information to be processed and/or functions to be invoked, **characterized in that** the method further comprises personalizing the device by means of derive personalizing information from said selections, and storing the personalizing information in the device.

ABSTRACT:

The invention relates to an information processing device (1), comprising a user control unit (2) for making selections of units of primary information to be processed and functions to be invoked. The device further comprises storage means (3) for storing the primary information. From the selections made by the user, the device derives personalizing information concerning the use of the device and the primary information processed with the device The personalizing information is stored separately and represents a history of the usage of the device, making the device more personalized to its owner.

Fig. 1

1/1

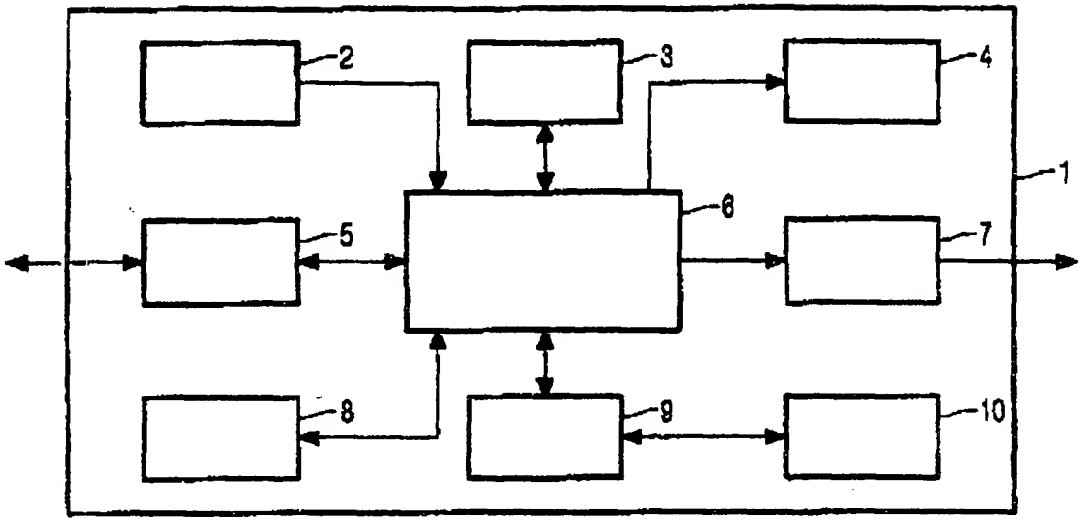

FIG. 1

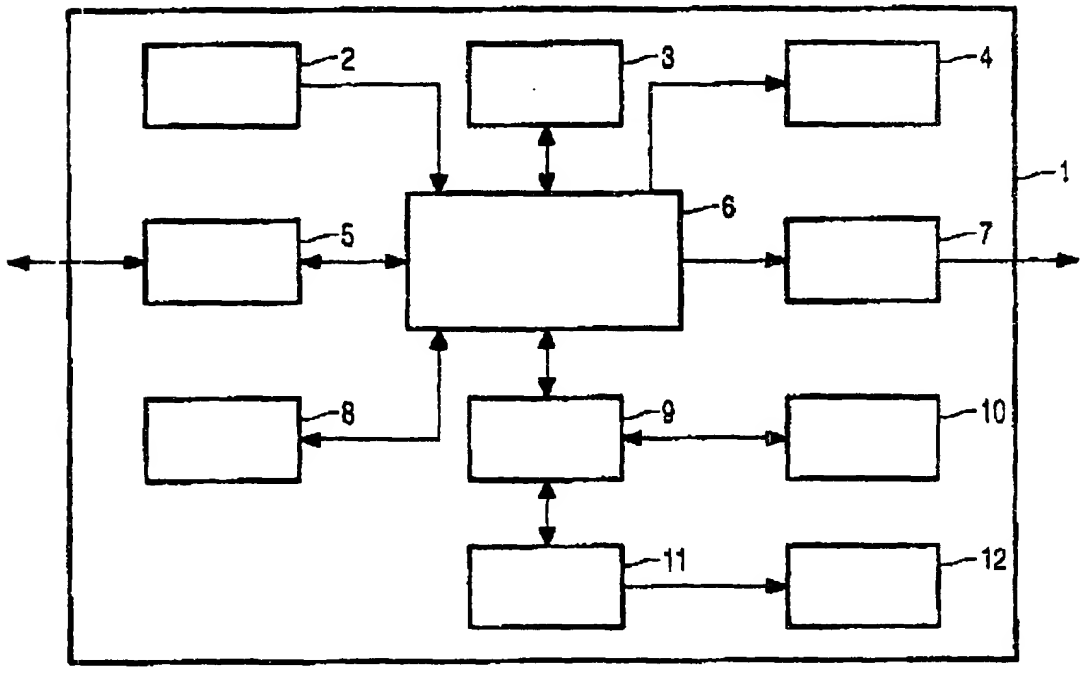

FIG. 2

PHN17070